

A study of the effect ...

S/080/63/036/002/015/019
D204/D307

of the effects of catalyst concentration, reactant ratio, time, stirring and temperature showed that optimum conditions are: catalyst 5 mol%, $C_6H_{10}O:CH_3NO_2 = 3:1$, reaction time 6 days, and temperature not above room temperature. Stirring exerts a beneficial effect. There are 5 figures and 1 table.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskii institut imeni S. M. Kirova (Kazan' Institute of Chemical Technology imeni S. M. Kirov)

SUBMITTED: December 2, 1961

Card 2/2

SHEMSHURIN, N.A.

Why Leninsk Cotton Mill no.1 turns out low quality products.
Tekst.prom. 14 no.10:12-15 0 '54. (MLRA 7:10)

1. Zamestitel' nachal'nika tekhnicheskogo otdela Glavzagotkhlop-
proma.
(Leninsk--Cotton manufacture) (Cotton manufacture--Leninsk)

RODICHEV, S.D.; MERKIN, I.B.; MILOKHOV, N.I.; POPELLO, A.P.; SOLOV'YEV, N.D.; SHEMSHURIN, U.A.; SORKIN, N.B., retsenzent; SMIRNOV, I.I., retsenzent; ANDREYEV, Yu.I., retsenzent; BRAVYY, Z.A., retsenzent; SOKOLOVA, V.Ye., red.; MELVEDEV, L.Ya., tekhn.red.

[Handbook on the primary processing of cotton] Spravochnik po pervichnoi obrabotke khlopka. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po legkoi promyshl., 1959. 687 p. (MIRA 13:4)
(Cotton gins and ginning)

SHUMYGIN, N. A., Cand Tech Sci (diss) -- "Investigation of the residual fiber on cotton seeds". Tashkent, 1959. 21 pp (State Committee on Higher and Inter Spec Educ of the Council of Ministers Uzbek SSR, Tashkent Textile Inst), 150 copies (Zl. No 10, 1 MC, 13?)

SHERSHORIN, N.A., inch.

Residual cottonseed linters and the ginning output. Tekst.prom.

19 no.4:19-22 Ap '59.

(MIRA 12:6)

(Cotton gins and ginning)

SEMSHURIN, N.A., kand. tekhn. nauk

Effect of the moisture of raw cotton materials on the amount
of defects and impurities in cotton fibers. Tekst. prom. 22
no.7:20-22 JI '62. (MIRA 17:1)

1. Zamestitel' nachal'nika Gosudarstvennoy inspeksii po
kachestvu tekstil'nogo, kozhevennogo i pushno-mekhovogo
syr'ya.

SHIL'DIN, A.A., kum. tekhn. nauk.

Notes about the yield of cotton fibers. Tekst. prom. 24 no.3:82-
84 Nr '64. (MIRA 17:9)

1. Zamestitel' nachal'nika Gosudarstvennoy inspeksii po kachestvu
tekstil'nogo kozhevennogo i pushno-mekhovogo syr'ya.

L 07335-67 EWT(1) GW

ACC NR: AP6012112

SOURCE CODE: UR/0413/66/000/007/0022/0022

AUTHORS: Kaplunov, A. I.; Veksler, B. Ye.; Volkhonskiy, V. M.; Rerannikov, V. S.; Shemshurin, S. V. 23
B

ORG: none

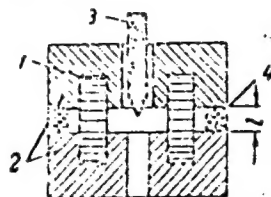
TITLE: Thermostabilized generator for a seismic core probe. Class 21, No. 180221

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 7, 1966, 22

TOPIC TAGS: seismologic instrument, electronic oscillator

ABSTRACT: This Author Certificate presents a thermostabilized generator for a seismic core probe. The tank circuit contains a ferrite trimmer and an induction coil placed on a ferrite core with a gap (see Fig. 1).

Fig. 1. 1 - induction coil;
2 - core; 3 - trimmer; 4 - gasket



To stabilize the generated frequency in a wide range of temperatures, the core gap has a height of 0.05 to 0.2 times the height of the core. A nonmagnetic ring gasket is placed between the outer walls of the core cups. Orig. art. has: 1 diagram.

AUTHOR: None given

5-3-14/37

TITLE: Chronicle of the Hydrogeological Section (Khronika gidrogeologicheskoy seksii)

PERIODICAL: Byulleten' Moskovskogo Obshchestva Ispytateley Prirody, Otdel Geologicheskiiy, 1957, No 3, pp 159-160 (USSR)

ABSTRACT: The following reports were delivered at the meeting of the Hydrogeological Section, Moscow Society of Naturalists, from 14 February to 21 March 1957: I.G. Glukhov on "Loesses of Water Origin in Some Regions of Central Asia"; Yu.V. Mukhin on the "Influence of Natural Fluctuations of the Underground Water Level on the Discharge of Wells and Other Water Collectors"; V.A. Shemshurin on "Hydrogeological Calculation of the Underground Discharge of the Yakh-Su River (Central Asia) by Electric Survey Data"; V.V. Ivanov on "Vertical Hydrochemical Zonation in Regions of Active Volcanos"; B.P. Bulavin on "Problem of Loessial Soil Sagging in Connection with Observations on the Lower-Don Canal", and A.S. Ryabchenkov on the "Mineralogical and Petrographic Composition and Origin of Loessial Rocks of the Donets Ridge".

AVAILABLE: Library of Congress
Card 1/1

SHEMSHURIN, Vladimir Andreyevich; BORUSHKO, T.I., red. izd-va;
GUROVA, O.A., tekhn.red.

[Methodological handbook on prospecting with radio waves in
searching for underground waters in an arid zone] Metodiche-
skoe rukovodstvo po radiovolnovom zondirovaniu (RVZ) pri
razvedke podzemnykh vod v aridnoi zone. Moskva, Gosgeol-
tekhizdat, 1962. 45 p. (MIRA 15:10)
(Electric prospecting) (Water, Underground)

SHEMSHURIN, V.A., inzh.

The relation between the coefficient of permeability and the
specific resistance of ~~sandy-clay~~ strata. Gidr.stroi. 32
no.9:36-39 S '62. (MIRA 16:2)
(Scil percolation)

SHEMSHURIN, V.A.; OGIL'VI, N.A., nauchn. red.; ZHARKOVA, A.P.,
tekhn. red.

[Survey of abstracts and bibliography on the use of
geophysical methods in engineering geology and hydrogeology,
based on material published between 1940-1959] Referativnyi
obzor i bibliograficheskii ukazatel' primeneniia geofiziche-
skikh metodov v inzhenernoi geologii i gidrogeologii; po ma-
terialam, opublikovannym v pechat' s 1940-1959 g. Moskva,
1962. 67 p. (MIRA 16:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeo-
logii i inzhenernoy geologii.
(Bibliography--Prospecting--Geophysical methods)

OL'KHOVA, A., kand.arkhitektury; SEMSHURINA, Ye., kand.arkhitektury

Houses and apartments in Caracas, capital of Venezuela. Zhil.
stroi. no.11:26-30 '58. (MIRA 12:6)

(Caracas--Apartment houses)

KHAL'FAN, Yu.A., inzh.; SHEMSHURINA, Ye.A., red.; KOGAN, F.L.,
tekhn. red.

[rear-engine automobiles; a survey] Avtomobili s zadnim
raspolozheniem dvigatel'ia; obzor. Moskva, TSentr. in-t
nauchno-tekhn. informatsii mashinostroeniia, 1962. 66 p.
(Seriia XII: Avtomobilestroenie) (MIRA 17:4)

SHEMTOV, A.Z., kand.tekhn.nauk

Measuring dynamic stresses in moving blades and other parts of
turbines under operating conditions. [Trudy] LMZ no.6:169-192 '60.
(MIRA 13:12)

(Turbines)

SHEMTOV, A.Z., kand.tekhn.nauk

Taking into consideration the rigidity caused by fastening wires
in calculating the bending and the tangential vibration within
blading sections. [Trudy] IMZ no.6:222-231 '60. (MIRA 13:12)
(Bladen--Vibration)

5.3706(C)

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507/20 130-2 27/69

AUTHORS: Titov, A. I., Lisitsyna, Ye. S., Shemtova, M. R.

TITLE: Some Observations Concerning the Chemistry of Ferrocene

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 2, pp 341 - 343 (USSR)

ABSTRACT: The authors succeeded in producing ferrocene in a yield amounting to 90% of the theoretical one (Ref 1) (see Experiment Nr 1). The cobalt-containing analog was produced in a very simple way as $(C_5H_5)_2Co^+Br_3^-$ (Experiment Nr 2) while the ferrocene was transformed almost quantitatively into the ferricinium salt $(C_5H_5)_2Fe^+FeCl_4^-$ (Experiment Nr 3). The synthesis of 1,1'-diniteroferrocene by the reaction of $FeCl_2$ with sodiumnitrocyclopentadienate was not possible. As is known ferrocene could not be nitrated (Refs 2,3), it was only transformed into ferrocinium cation. The authors observed that this process with diluted nitric acid is practically based on autocatalytic reaction with nitrogen dioxide (see Scheme). In the presence of hydrazine, the oxidation nearly stops. An addition of urea acts weakly. Con-

Card 1/4

Some Observations Concerning the Chemistry of Ferrocene SOV/20-130-2-27/69

sidering outer characteristics and the formation of iron cations the action of HNO_3 on the ferricinium cation leads to transformation products of nitrocyclopentadiene. In the reaction of ferrocene with reagents introducing the nitroso group such as nitrosyltetrafluoroborate $NO^+BF_4^-$, a radical-like nitrogen oxide is separated out. The interaction of ferrocene with the NO_2^+ of various nitration agents in the first stage must proceed in a similar way. Ferricinium cation also developed under the action of aluminum chloride solutions in thionyl chloride, in phosphorus trichloride, and in phosphorus oxychloride on ferrocene, probably due to the reaction with cations of the type $SOCl^+$, PCl_2^+ . Considerable amounts of sodiumnitrocyclopentadienate and (after treatment with water) iron hydroxides were formed by a 2-day action of ethyl nitrate in the presence of sodium ethylate or sodium tertiary butylate, solved in the corresponding alcohol. Without alcoholate, no reaction with ethyl nitrate occurred, even in acetic-acid anhydride. It is possible that the activat-

Card 2/4

Some Observations Concerning the Chemistry of Ferrocene SOV/20-150-2-27/69

ing action of the alcoholate is based on its complex formation with ferrocene due to the interaction with a cationic Fe-atom (see Scheme), and on an increase in nucleophilic capacity of the C_5H_5 -radicals. Thus, these radicals are adapted even more to the state of the $C_5H_5^-$ anion. As is known, a free cyclopentadienyl ion reacts quickly under such circumstances to form a nitro derivative (Ref 4). The authors produced disulfonic acid in a yield up to 80% of the theoretical one by sulfonation of ferrocene in acetic acid anhydride at 0° for 2.5 h. Iron cations were, however, formed at the same time. The method of producing ferrocenyl aldehyde worked out by the authors in 1957-58 proved to be more convenient than the methods described previously (Refs 8-11). Contrary to the assertions of reference 11, ethereal solutions of ferrocenyl aldehyde yield a bisulfite compound. This was utilized in the authors' method. Ferricinium cation developed in the reaction, and the ring was decomposed. The aldehyde was used to prepare several dyestuffs. Finally, the authors describe their experiments Nos 1-5. There are 11

Card 3/4

Some Observations Concerning the Chemistry of Ferrocene SOV/20-130-2-27/69

references, 3 of which are Soviet

ASSOCIATION: Gosudarstvennyy nauchno issledovatel'skiy institut organicheskikh poluproduktov i krasiteley im. K. Ye. Voroshilova ✓
(State Scientific Research Institute of Organic Intermediates and Dyestuffs imeni K. Ye. Voroshilov)

PRESENTED: September 11, 1959, by A. N. Nesmeyanov, Academician

SUBMITTED: September 5, 1959

Card 4/4

L 24516-66 ENT(m)/EWP(j)/T ISP(c) RM

ACC NR: AP6009525

(A)

SOURCE CODE: UR/0413/66/000/005/0049/0049

AUTHOR: Laptev, N. G.; Shemtova, M. R.; Tabachnikova, N. I.;
Klimova, T. S.

23
B

ORG: none

TITLE: Preparation of light-resistant, migration-resistant, and heat-resistant varnishes. Class 22, No. 178404 [announced by the Scientific-Research Institute for Organic Semifinished Products and Dyes (Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 5, 1966, 49

TOPIC TAGS: varnish, heat resistant varnish, light resistant varnish, migration resistant varnish

ABSTRACT: An Author Certificate has been issued describing a method for obtaining light-resistant, migration-resistant, and heat-resistant varnishes made with sulfonated linear quinacridone. To produce varnishes suitable for coating plastics, rubber, and film-forming compounds, the sulfonated linear quinacridone, either in the form of a water solution of the free acid or in the form of a water-soluble

Card 1/2

UDC: 667.636.44/46

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ACC NR: AP6009525

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salt is treated with the water solution of one of the salts of the first, third, and eighth metal group, whereby the process is conducted in the presence of dispersion agents. [LD]

SUB CODE: 11/ SUBM DATE: -05Jan65/

2/9
Card BLC

BUCHACHER, Ye.A.; NEYAGLOV, A.V.; POKHODENKO, N.T.; SHERMYAKIN, A.A.

Improved hydraulic systems for the double end packing of
centrifugal pumps. Mash. i nef. obr. no.4:7-10 '64.
(MIRA 17:6)

1. Bashkirskiy nauchno-issledovatel'skiy institut po
p ererabotke nefi.

BUCHACHER, Ye.A., NEYAGLOV, A.V.; POXNODENKO, N.T.; SHEMYAKIN, A.A.

Hydraulic systems of double end packing for centrifugal
pumps. Trudy BashNII NP no.7:62-67 '64. (MIRA 17:9)

LADYGINA-KOTS, Nadezhda Nikolayevna; KAGANOV, V.M., otv.red.;
SHEMYAKIN, F.I., otv.red.; ROGINSKIY, Ya.Ya., otv.red.;
GELLERSHTEYN, S.G., red.izd-va; SHEVCHENKO, G.N., tekhn.red.

[Constructive and implement-using behavior in higher apes
(chimpanzees)] Konstruktiivnaya i orudiinaya deiatel'nost'
vysshikh obez'ian (shimpanze). Moskva, Izd-vo Akad.nauk
SSSR, 1959. 398 p. (MIRA 13:1)
(Chimpanzees) (Animal intelligence)

CHENYU-KIN, B. M. (cont. from page 1)

... measures in a ... speed section. Put ... put. khoz. A
no. 22 ... (MIRA 17:10)

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TEST AND (IN) TRIERS

PROCESSES AND PROPERTIES

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The reaction between silver nitrate and potassium ferrocyanide, and between copper sulfate and potassium ferrocyanide, in gelatin. M. S. DUNIN AND P. M. SAKHAROV. *J. Russ. Phys.-Chem. Soc.* 61, 875-80 (1929) — The chem. reactions occurring in gelatin gels are classified in 3 groups: (1) Typified by the reaction between AgNO_3 and $\text{K}_4\text{Fe}(\text{CN})_6$. If a drop of the sat'd. soln. of one of these salts is placed on the surface of the jelly contg. the other salt, periodic deposits are formed in the diffusion field over a certain concn. interval. The drop acquires a radial structure resembling in appearance the diffusion of one liquid into another. No periodic deposits are formed within the drop. (2) Typified by the reaction between AgNO_3 and $\text{K}_4\text{Fe}(\text{CN})_6$. Within certain concn. intervals, periodic deposits are formed in the drop and roset-like radial structures in the diffusion zone. The appearance of rosetts is caused by syneresis of the gel. (3) Typified by the reaction between AgNO_3 and KCl . Rhythmic pptn. zones are absent. Structures of class (2) can be obtained best with satd. AgNO_3 outside and 0.01-0.05 N $\text{K}_4\text{Fe}(\text{CN})_6$ in the gel; on the other hand no roset is formed with AgNO_3 as the "inner electrolyte." At 0.5-0.25 M concns. of $\text{K}_4\text{Fe}(\text{CN})_6$, rhythmic deposits are formed only under the drop. $\text{K}_4\text{Fe}(\text{CN})_6$ inside and CuSO_4 outside give a radial roset in the diffusion zone; between 0.25-0.5 N $\text{K}_4\text{Fe}(\text{CN})_6$ microlayers are deposited under the drop. The morphological characteristics of the reactions depend on the quality of gelatin. A roset situated under the drop results with satd. $\text{K}_4\text{Fe}(\text{CN})_6$ outside and 1% $\text{Ca}(\text{NO}_3)_2$ inside.

B. SOVENKO

PROCESSING AND PROPERTY INDEX																									
TEST AND ANAL. GROUPS													TEST AND ANAL. GROUPS												
<p><i>CR</i></p> <p>The morphology of chemical reactions in colloidal media. II. F. M. SHIRYAKIN. <i>Kolloid Z.</i> 50, 58 (1929). <i>J. Russ. Phys.-Chem. Soc.</i> 61, 1241 (1929). cf. C. A. 23, 3015. The reaction between AgNO_3 and $\text{K}_4\text{Fe}(\text{CN})_6$ in gelatin was studied in test tubes. The optimum concn. of $\text{K}_4\text{Fe}(\text{CN})_6$ for forming radiating rosetts in different kinds of gelatin is 0.01-0.03 <i>M</i>. Radiating rosetts are not formed when the reaction takes place in agar. They are not formed in gelatin in the reaction between AgNO_3 and $\text{K}_4\text{Fe}(\text{CN})_6$. Instead, round drops appear in the diffusion field. In the concn. interval 0.2-0.4 <i>M</i> a second diffusion field of peculiar structure appears, consisting of convex layers under the drops of AgNO_3. In the reaction between $\text{K}_4\text{Fe}(\text{CN})_6$ and $\text{Ca}(\text{NO}_3)_2$ in gelatin and agar radiating rosetts form under the drops of $\text{K}_4\text{Fe}(\text{CN})_6$ as well as periodic rings. The shape and size of the rosetts and rings vary widely. Wrinkles occur in the diffusion field, indicating tension. Periodic deposits under the drops and distortion of the diffusion field were observed in a whole series of reactions. AgNO_3 and K_4CrO_7 in agar form periodic deposits but they are characteristic only under drops of AgNO_3. Characteristic rings of PbI_2 were observed in gelatin.</p> <p style="text-align: right;">F. L. BROWNE</p>																									
<p>ASAC 51.4 METALLURGICAL LITERATURE CLASSIFICATION</p>																									

PROCESS AND PROPERTY INDEX

A-1

BC

Kinetics of chemical reactions in gels. IV.
F. M. SCHERAGA (J. Res. Phys. Chem., 1960,
64, 1885-1894; cf. this vol., 33).—The same vari-
ation in the appearance of the figure produced by
placing a drop of oil reagent on gelatin impregnated
with cellulose is produced by diminishing the concen-
tration of the first reagent rather than that of the second
reagent. The structure of different periodic pro-
pagation figures is described, and theories relating
to the mechanism of these reactions are advanced.

R. THURLOWSKI

SUBJECT INDEX

A00-55A METALLURGICAL LITERATURE CLASSIFICATION

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2

Morphology of chemical reactions in gels. V. The theory of periodic reactions
F. M. SHIRYAKIN. *J. Gen. Chem.* (U. S. S. R.) 1, 455 (1961), *et al.* 25, 3001 (2). A
drop of liquid possesses orientation planes and other evidences of internal structure. It
can therefore be regarded as a "unit of higher order" compared with the mol. The struc-
tures (zonets, etc.) formed when a drop of solid soln. is placed on a jelly probably repro-
duce the arrangement of the mole. inside the drop. Within a drop of AgNO_3 soln., for
instance, oppositely charged (radial or concentric) zones possibly exist, some containing com-
plex cations $[\text{Ag}(\text{H}_2\text{O})_6]^+$, others the anions $[\text{Ag}(\text{NO}_3)_2]^-$. When the drop in-
creases by absorbing water from the jelly, either the radial zones become longer
or new concentric zones are formed. In the latter case, the zones formed alternate in
sign, the changes in the surface charge on the drop produce changes in the angle of
contact liquid-gel. The drop should therefore spread in a discontinuous (stepwise)
fashion, as is well borne out by the exp. The penetration of the drop into the jelly is
often accompanied by change in the type of structure, for instance, from radial to zonal
in the case of AgNO_3 diffusing into $\text{K}_2\text{Cr}_2\text{O}_7$ in gelatin. The alternately charged zones
remain when the solute in the drop diffuses into the jelly. As a result, the particles of
the ppt. formed alternate in charge during the diffusion. Observations of the diffusion
of AgNO_3 into gelatin jelly containing $\text{K}_2\text{Cr}_2\text{O}_7$ and changes in the structures, produced when
drops of a solid soln. (of $\text{K}_4\text{Fe}(\text{CN})_6$, $\text{K}_2\text{Cr}_2\text{O}_7$, FeSO_4) are added, support the above
views.
B. SOYNSKOFF

Bc

A-1

Examination of the periodic table
shows that the elements are
classified in two periods, or two groups, that the
no. of sub-groups is seven, from I to VII,
and to VIII.

R.T.

AIR-SLA METALLURGICAL LITERATURE CLASSIFICATION

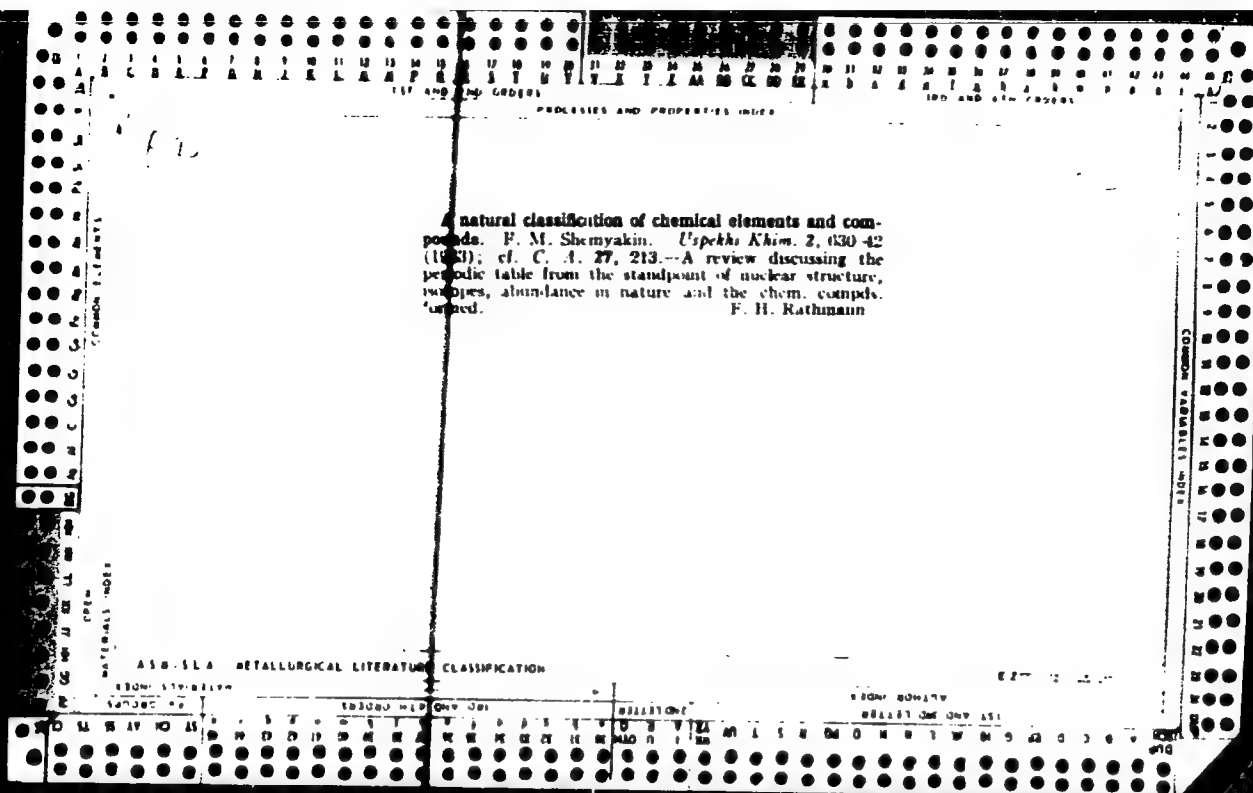
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Natural classification of chemical compounds. II. Classification according to structural number and geometrical series. F. M. SHKLYARIN *J. Gen. Chem.* (U. S. S. R.) 2, 128-34 (1932); cf. *C. A.* 25, 2032. In line with the analogy of curves for various constants an analogy is observed among curves of similar constants for various cases of compounds when they are arranged in the normal geometrical series according to structural number. The geometrical series is applicable to the study of the law of periodicity of Petrenko-Kritchenko (cf. *C. A.* 24, 5190). The natural system is characterized as centralized pseudocubic.

CHAS. BLANC

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION

117 AND 118 (1974)																										119 AND 120 (1974)																									
117 AND 118 (1974)																										119 AND 120 (1974)																									
<p>Apparatus for gas analysis. M. N. Dumin and P. M. Shumakov. "Zashchita" Lab. 3, No. 6, 43 (1983). The 2 variants of the proposed app. are illustrated and described. Chas. Blanc</p>																																																			
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PROCESSING AND PROPERTIES INDEX

H-1

Viscosity curves of sols of lyophilic colloids,
and other curves. J. M. KRAVCHAK (J. Gen.
Chem. Russ., 1938, 2, 12-14). The viscosity of latex
samples sol is given by $\eta = (A - B)C + C^2$, where
 A and B are constants, and C is the % concentration of colloid.
The η -[MgSO₄] curve exhibits a minimum; this phenom-
enon is ascribed to neutralization of the charge of
colloidal particles, followed by dehydration and
supercharging.

R.T.

ASACSLA METALLURGICAL LITERATURE CLASSIFICATION

Natural classification of chemical compounds. III.
 P. M. Shchegolev, *J. Gen. Chem.* (U. S. S. R.) 3, 260-74
 (1933); *cf. C. A.* 27, 213.---The mol. system is qualitatively different from the at. system. The natural mol. system can be characterized as a generalized diagram of properties built according to the mol. and structural no. and the mol. symmetry. For the zero group of the Mendeleev system the conceptions of mol. and at. no. are equiv. According to the like or unlike mol. no. and symmetry there are constructed 3 basic kinds of tables, each subdivided into 3 groups. Thus are obtained the tables of 9 kinds genetically connected by "the law of centralised cube." In the normal geometrical series each mol. can be designated by a symbol detg. the interrelation of its nodal points. Comparison of the mols. in the system leads to conclusions and predictions regarding their phys. and chem. properties. The phys. const. of mols. are basically detd. by the type of the inactive gas to which the given mol. belongs, its symmetry, the no. of atoms, the law of periodicity, the interrelation of the magnitudes of its component parts, and the no. and structure of the nodal points.
 Chas. Blank

[illegible]

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The wave theory of periodic reactions II P. F. Mikhalev and P. M. Shemyakin. *J. Gen. Chem.* (U. S. S. R.) 3, 1001-4 (1933); cf. *C. A.* 28, 2229, 2972. — The equation $\lambda I' = \text{const.}$ was further verified on the following periodic reactions: (1) MnCl_2 with $(\text{NH}_4)_2\text{S}$ on gelatin; (2) Na_2HPO_4 with CaCl_2 on gelatin; (3) AgNO_3 with NaHSO_4 on gelatin and agar. Apparently the equation $\lambda I' = \text{const.}$ retains its value for all periodic reactions on gels and presents new possibilities for the quant. study of Liesegang rings. The reaction between KI and HgCl_2 was studied. W. P. Kricks

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200

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501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600

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Gravimetric determination of vanadium with ammonium metavanadate, and of titanium with titanin.
F. H. SAMMISAKIN: (Zaved. Lab., 1934, 2, 586-587).—
 25 c.c. of solution, containing 0.1–0.15 g. of V_2O_5 , are
 boiled with 10 c.c. of 2N-HCl; $(NH_4)_2SO_4$ is added to
 reduction of V^{5+} to V^{4+} . A hot saturated solution of
 1 g. of NH_4OAc is then added, the solution boiled for
 2 min., the ppt. of $VO(OAc)_2$ collected after 4 hr.,
 washed with saturated aq. $NaOH$, ignited, and weighed
 as V_2O_5 . Fe and Cr should be absent; Mg, Al, Cu,
 Mo, W, and Ti do not interfere. Das-Gupta's method
 for determination of Ti (A., 1930, 566) is not as accu-
 rate as the 8-hydroxyquinoline method. R. T.

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION

BC

A-1

Colorimetric determination of cerium and titanium by means of gallic acid. P. M. SCHWENK (Zavod. Lab., 1934, 3, 1099-1091). 2.7 c.c. of 0.001M-gallic acid, sufficient solution to give a final concn. of $3-7 \times 10^{-4}$ g. Ce per c.c., 2 c.c. of Et_2O or PhMe , and 5-3 c.c. of 0.1N- NH_3 (containing 1 g. of cryst. Na_2SO_4 per 100 c.c.) are mixed in a stoppered vessel, the aq. layer is diluted to 10 c.c., and the coloration obtained compared with that given by standard aq. Ce solution. R. T.

ASAP-514 DETALLUPICAL LITERATURE CLASSIFICATION

BC

Reaction, Fe^{3+} and Mn^{2+} with pyrogallol, and the reduction of chlorate, bromate, and chromate of the alkali metals by pyrogallol. *F.M. SHERMAN, J. CHEM. EDUC.*, 1936, **13**, 245-252.

—A few drops of solution are added to 10 c.c. of 1% pyrogallol, followed by a few drops of 10% aq. NH_3 when a blue ppt. indicates $< 1.4 \times 10^{-5}$ g. of Co^{3+} or Co^{IV} . La and Th do not interfere with this reaction. Under similar conditions Fe^{3+} , Ti^{3+} , Zn , Al , Ni^{2+} , and Co^{2+} give a brown coloration, Cr^{3+} a ppt. of $\text{Cr}(\text{OH})_3$, and Mn^{2+} a dark brown ppt.

R. T.

R. T.

A 3 0 . 3 1 4 METALLURGICAL LITERATURE CLASSIFICATION

BC

Emission wave theory of periodic reactions.
III. F. M. SCHERBACHIN (J. Gen. Chem. Russ., 1934,
4, 444-451).—A mathematical derivation of the
formula $\lambda r = \text{const.}$ (this vol., 363) is given. R. T.

AS 50-514 METALLURGICAL LITERATURE CLASSIFICATION

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<p>Natural classification of chemical compounds IV J. M. Shermankin. <i>J. Gen. Chem.</i> (U. S. S. R.) 4, 1031 41(1934); <i>C. A. A.</i> 28, 2229. - Stability and instability of chlorides, silicides, nitrides, phosphides, oxides, sul- fides, fluorides and chlorides of the metals and nonmetals of the 1st 2 groups of the periodic system are discussed in the light of Shermankin's theory of natural classification of compounds. This theory is also applicable to the interpretation of alloys existing in the form of compounds with abnormal valence relationship, such as $CeCu$, $4bHg$, $Na(Zn)_2$, $TiNa$, $NaAl$, and $NaPb$. J. L. Madorsky</p>																																							
<p>ASAC SIA DETAILING LITERATURE CLASSIFICATION</p>																																							

BC

A-1

Emission wave theory of periodic reactions.
V. Study of periodic reactions by methods of
physico-chemical analysis. P. F. MINWALEV and
F. M. SCHENGAJIN (J. Gen. Chem. Russ., 1934, 4,
1117-1127).--The equation $\lambda s = AN/M$ (λ =distance
between bands, s =velocity of propagation, N =
concn. of the external electrolyte, and M its mol. wt.)
is verified for a no. of Liesegang systems, and is found
to hold the more closely the smaller is the concn. of
gelatin. The phenomenon of Liesegang ring forma-
tion is analogous to that of emission of stationary
waves on the surface of a flowing liquid. R. T.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

ASB-SLA

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ASB-SLA

157 AND 158 (1954) PROCESSING AND PROPERTY S. 24

Effect of organic substances on periodic reactions
P. F. Mikhalev and F. M. Shemyakin. *J. Phys. Chem.*
(U. S. S. R.) 5, 750-4 (1951). The action of many org.
substances on the Diesegang ring formation of the system
 $\text{AgNO}_3\text{-K}_2\text{Cr}_2\text{O}_7$ in gelatin was studied. Ethylenediamine
and citric acid had marked effects; tartaric, lactic and
succinic acids had weak effects; bromine, glycol and *iso*-
 PrOH were almost without effect. The change in the
ring spacing resulting is due not only to surface activity
of the added substance but probably also to factors such
as electrolytic disson. and complex formation.
F. H. Rathmann

AS 544 METALLURGICAL LITERATURE CLASSIFICATION

157 AND 158 (1954) PROCESSING AND PROPERTY S. 24

BC

H-1

Morphology of chemical reactions in gels.
VIII. Effect of acids and alkalis on Liesegang rings and the "radial rosette," and some observations in the absence of gels. F. M. SCHNITZLER (J. Phys. Chem. U.S.S.R., 1934, 5, 755-762).
Liesegang ring formation in gelatin has been studied with $K_2Cr_2O_7$, $NaCl+0.0005M-H_2SO_4$, KCN , and $KCN+0.00005M-H_2SO_4$ as the inner and $AgNO_3$ as the outer electrolyte. Diffusion rosettes are obtained, without gelatin, from $UO_2(NO_3)_2$ or $CuSO_4$ and $NaOAc$ (I). $AgNO_3$ and (I), KCN , or HCl give periodic structures. $UO_2(OAc)_2$ with (I) or $Na malonate$ gives rings only in absence of gelatin. Addition of H_2SO_4 or KOH changes considerably the shape of the ring formation in all cases.

CH. ABG. (c)

2

THEORY OF PHYSICOCHEMICAL PERIODIC PROCESSES. F. M. Smolyakin and A. A. Vitt. *Acta Physicochim. U. R. S. S.* 2: 171-6(1935)(in German).—Theoretical. For certain cases the law of mass action and the Fick diffusion law suffice to account for the periodicity of a reaction.

F. H. Rathmann

13C A-1

PROCESSES AND PROPERTIES INDEX

Natural classification of chemical compounds.
 II. F. M. SORHJANIN (Acta Physicochim. U.R.S.S.,
 1935, 2, 421-426; cf. A., 1931, 287).—Analogies are
 observed between the physical properties of com-
 pounds of similar structural arrangement and
 between compounds in which the sums of the at.
 num. of the constituent atoms are equal. J. W. S.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

BC

A-1

Investigation of periodic reactions by application of physico-chemical analysis. —**P. M. SCHWAB**, **JAKIN** and **P. F. MICHALSKY** (Acta Physicochim. U.R.S.S., 1935, 2, 427—432; cf. A., 1934, 363).—The product of the distance between successive bands and the velocity of diffusion for Liowgang ring type periodic structures produced with $K_2Cr_2O_7$ and $AgNO_3$ diffusing in gelatin varies with the concentration of the gel and of the electrolytes. Periodic pptns. have also been observed with $K_2Cr_2O_7$ and neutral-red, $K_4Fe(CN)_6$ and methylene-blue, and with $K_2Cr_2O_7$ and Me-violet, all in gelatin. J. W. S.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

2

The application of topology and invariants to the representation of chemical reactions. P. M. Shemyakin. *Acta Physicochim. U. R. S. S. 2, 657 (1955); cf. C. A. 28, 2229.* A method of expressing chem. reactions by means of structural formulas is proposed. For example,

the dissociation of Na_2O_2 and the dissociation of CH_3CHO

has the same form. The reaction $\text{H}_2 + \text{I}_2 \rightleftharpoons 2\text{HI}$ is represented by a highly symmetrical structure, because of the equal no. of units participating, whereas the reaction $\text{NO} + \text{Cl}_2 \rightleftharpoons \text{NOCl}_2$ combined with the reaction $\text{NOCl}_2 + \text{NO} \rightleftharpoons 2\text{NOCl}$ is less symmetrical. A geometric classification of chem. reactions is proposed.

R. R. Rushton

ASAC SLA METALLURGICAL LITERATURE CLASSIFICATION

1125 5 11254

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117 AND 120 ORDERS

PROCESS AND PROPERTIES INDEX

Colorimetric determination of titanium by means of gallic acid and a comparison of this method with the hydrogen peroxide method. F. M. Shoushaki and A. Neumolotova. *J. Gen. Chem.* (U.S.S.R.) 5, 1917 (1935). The method of P. N. Das-Gupta. *C. I.* 24, 1820 (1935). The method of detn. of small amts. of Ti, by the addn. of gallic acid and N.OAc, was studied in detail. In mixing the reagents with the Ti-salt soln., the latter should at no time be mixed with the NaOAc soln. without the gallic acid already being present. Optimum amts. of reagents to be used are: 8 cc. of 1% soln. gallic acid and 4 cc. of 5% soln. NaOAc, per 50 cc. total vol. of liquid, contg. about 0.0005-0.0001 g. Ti per cc. Soln. should be neutral. Amts. of Ti, 8 x 10⁻⁵ to 3 x 10⁻⁴ per cc. can be detd., and the method is about 20 times more sensitive than the H₂O₂ method. However, metals such as Fe, Mo, U, W, Cr, V, Al, Be, Th, Zr, Mn, Zn, Ni, Co and Cu, interfere and should be removed. S. L. M.

7

DATE OF CLASSIFICATION

AS 5 SLA METALLURGICAL LITERATURE CLASSIFICATION

117 AND 120 ORDERS

PROCESS AND PROPERTIES INDEX

117 AND 120 ORDERS

PROCESS AND PROPERTIES INDEX

130

10-1

Colour reactions of rare-earth metals with pyrogallol and gallic acid. H. F. M. SCHREK-JAKIN and T. V. VASCHENKOVSKO (J. Gen. Chem. Russ., 1935, 8, 667-674; ut. A., 1936, 661).—The phenomena observed when solutions of $\text{Os}(\text{NO})_2$, NiH_2 , and pyrogallol or gallic acid (5) are mixed are represented on triaxial diagrams. A colorimetric method for Os^{III} determination, based on the diagrams, consists in placing 4 c.c. of 0.001M-(1) in a Nessler cylinder, adding 4 c.c. of 0.0001–0.0008M- Os^{III} , and 2 c.c. of 0.1M- NH_3 containing 1% of Na_2SO_4 , filling the remaining space with Et_2O , and comparing the intensity of coloration with that of a standard solution after ≈ 2 min. R. T.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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theory of physicochemical periodic processes. A. A. Vut and P. M. Shemyakin. *J. Gen. Chem. (U. S. S. R.)* 5, 814 (1935); cf. *C. A. B.* 61879. - It is shown mathematically that periodic changes of concn. (Liesegang rings, periodic clotting out, chemotaxis) take place, with time, in systems $A + B \rightleftharpoons AB$; $A + AB \rightleftharpoons A_2B$; $A_2B + B \rightleftharpoons 2AB$, where A is the external component, i. e., the diffusate, B is the internal component, i. e., the diffused substance uniformly distributed through the medium, AB the product of reaction between A and B , and A_2B a reaction component of a complex or adsorptive nature. S. L. Madorsky

ASB 35.4 DETAIL LITERATURE CLASSIFICATION

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7-1

Physico-chemical analysis of periodic reactions. VI. I. P. M. SCHENKJAEK, E. A. FORINA, and P. F. MICHAILEV (*J. Gen. Chem. Russ., 1935, 5, 1145-1157*).—The value of the periodicity const. $K = \lambda v$ (λ = distance between rings, v = velocity of propagation) rises with increasing dilution of the internal electrolyte when aq. $\text{Pt}(\text{NO}_2)_2$ diffuses into aq. KI , Na_2CO_3 into $\text{H}_2\text{C}_2\text{O}_4$ or BaCl_2 , AgNO_3 into $\text{K}_2\text{Cr}_2\text{O}_7$ and $\text{K}_2\text{C}_2\text{O}_4$ into CaSO_4 . At the same time λ rises, v falls, whilst the no. of crystallites present in the ring falls, and the radius of the diffusion field increases. Periodic pptn. occurs in the reaction $\text{Na}_2\text{HPO}_4 + \text{CaCl}_2 \rightarrow \text{CaHPO}_4 + 2\text{NaCl}$ at p_n 0.5-12.9. In general, λ and K fall with increasing dilution of the Na_2HPO_4 and with increasing deviation from p_n 7. R. T.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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Gravimetric determination of vanadium with ammonium benzoate. F. M. Shemyagin and V. E. Chapuagin. *J. Applied Chem. (U. S. S. R.)* 8, 536-42 (in German 542-1935); cf. *C. A.* 29, 2888. The method permits the detn. of V in ores and alloys without removing Mg, Al, Cu, Mo, W and Ti, but Fe and Cr must be removed. Various

operations preliminary to V detn. are described. V is detd. as follows: A soln. contg. 0.10-0.15 g. V_2O_5 in 25 cc. (from higher oxides, NH_4VO_3 is pptd.) is acidified with 10 cc. 2 N HCl, followed by heating to boiling and reduction of the satd. soln. with a soln. of $(NH_4)_2S_2O_4$, which is added dropwise to const. color; an excess of the reagent is not harmful. The quadrivalent V is pptd. with hot NH_4 benzoate (satd. while cold) soln. with at least 1 g. of salt per 0.10-0.15 g. V_2O_5 . The soln. is boiled together with the ppt. for 2-3 min. and filtered. The ppt. is washed with a cold satd. soln. of C_6H_5COOH (0.37 g. C_6H_5COOH per 100 cc. H_2O), dried, ignited strongly and weighed as V_2O_5 .
A. A. Boetling

ASD 554 METALLURGICAL LITERATURE CLASSIFICATION

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Periodic reactions F. M. Shemyakin *Colloid J*
U. S. S. R. 1, 250 (1960). Sh. discusses the paper
by Baughan (*ibid.* 4, 29, 979) in the light of his previously
published data (*ibid.* 29, 6487, 30, 3302).

F. H. Rathmann

ASB S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

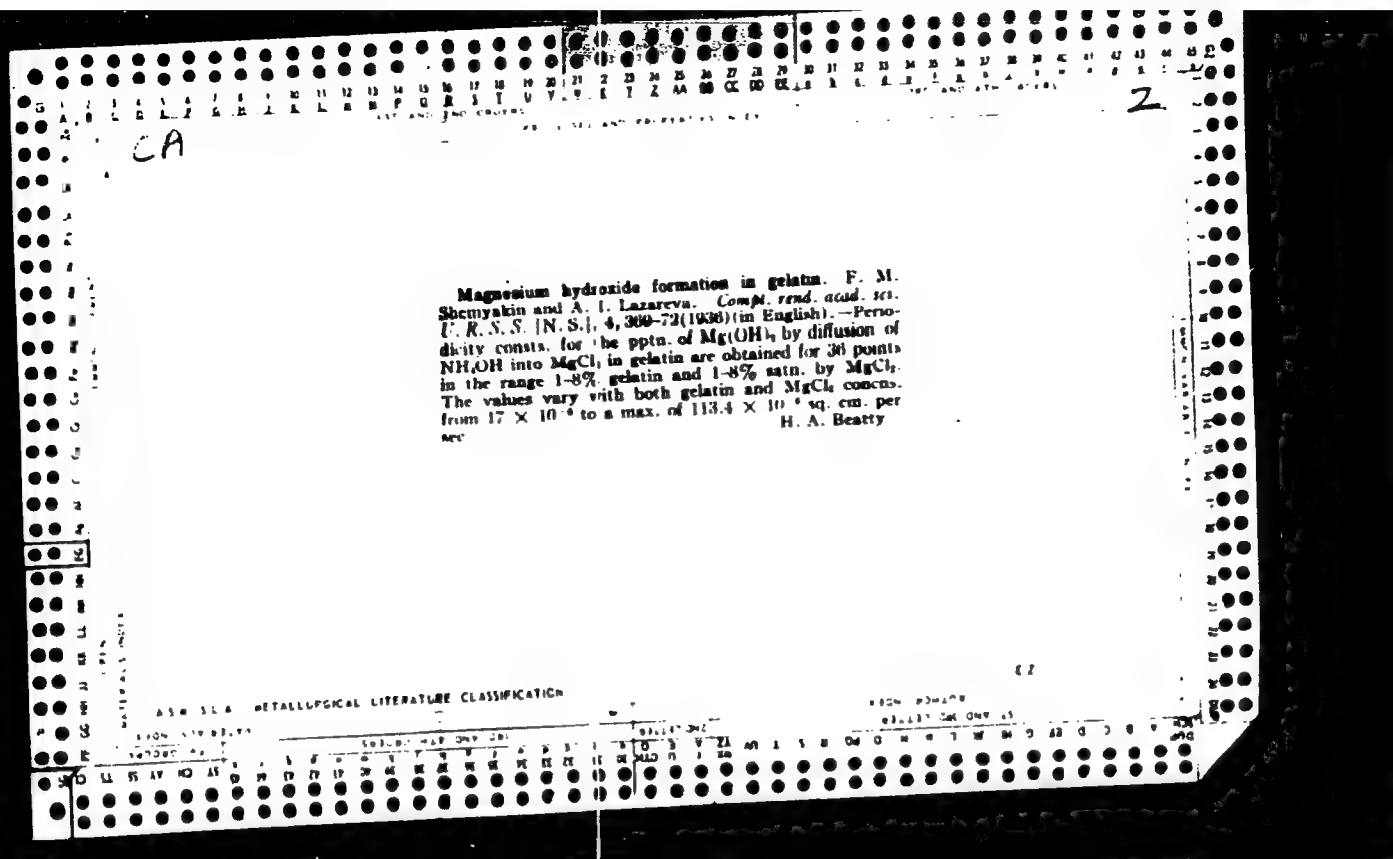
BC

PROCESS AND PROPERTIES INDEX

Undulating cracks and periodical crystallization in gelatin gel in the formation of mercuric carbonate. F. M. SCHUMYAKIN and A. I. LAKAROVA (Compt. rend. Acad. Sci. U.R.S.S., 1936, 3, 371-374). —The periodic crystallization observed in the formation of $HgCO_3$ from Na_2CO_3 and $HgCl_2$ in gelatin gel has been studied. The colour and form of the crystals are changed by reversing the inner and outer components. O. D. S.

ASB 31A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS		PROCESSES AND PROPERTIES INDEX		3RD AND 4TH ORDERS	
<p><i>BC</i></p> <p>Periodic reactions. V. M. SCHENJAKIN (Compt. rend. Acad. Sci. U.R.S.S., 1936, 4, 63-64).—The periodicity const. of periodic reactions increases with decrease in concn. of the exterior and interior components and of the medium, approaching $\lambda = AN/M$ (λ = distance between layers, v = velocity of expansion of field of diffusion, M = mol. wt. of the exterior electrolyte, A = Faraday's const., N = Avogadro no.). The max. val. is much > that calc. theoretically by Christiansen and Vulf (A., 1934, 965). O. D. S.</p>					
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>					

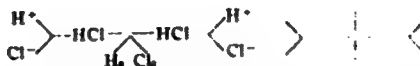


Colorimetric determination of tungsten and cerium
 F. M. Shemyakin, A. V. Vsevolova and M. I. Vladimirova
 Zhurnal Khim. 3, 231-2 (1936). Add 2 ml. of approx.
 0.01 N tungstate soln. and 2 ml. of 0.1 N CuSO_4 to 5 ml.
 of H_2O , heat the soln. at $74-75^\circ$ for 30 min., cool to 15° ,
 filter and wash the ppt. of Cu tungstate with 20% NaOH ,
 and dissolve in 10 ml. of 28% HCl . Compare the color of
 the soln. with that of standard Cu solns. Minor modifica-
 tions of Shemyakin's method for detn. of Cu at 4-29,
 1937(9) are described. W. A. A.

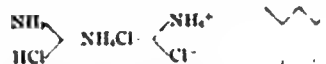
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

Natural classification of chemical compounds. F. M. Shemyakin. *Izv. sovetsk. anal. phys.-chem., Inst. chim. gn. (U. S. S. R.)* 9, 40-54 (1934); *cf. C. A.* 29, 4225. The basis of general classification of chem. units of different orders are the 2 operations of "stretch and shift." By the method of "Cayley square" (*Phil. Mag.* 13, 173 (1887); 18, 374 (1850)), it is mathematically possible to formulate the tables of the 1st order, and from these by a shift to derive the tables of the 2nd (Wernerides) and 3rd orders. The tables of the 2nd order for the systems of liquid HF and NH_3 are shown. The theory of trees and invariants (Cayley, *loc. cit.*; Alekseev, *Z. phys. Chem.* 34, 740 (1901)) applied to the progress of chem. processes in time gives results analogous to the spatial arrangement of atoms. Thus, the reaction between the mols. of H and Cl and the subsequent ionization of the HCl in time can be represented by a tree of the following structure:



In the interaction of NH_3 with HCl the corresponding tree is:



It follows that the resulting symbols represent sep. members of the normal geometrical series. Thus, reactions can also be classified according to the geometrical series, whereby sep. reactions are united into a single system. Therefore, the natural classification can be also extended to the chem. processes in time. Because of the analogy between the mols. and reactions, it is possible to speak of the reaction properties, such as the const. of the rate of chem. reaction and the periodicity. About 20 references. Chas. Blanc

ASB S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

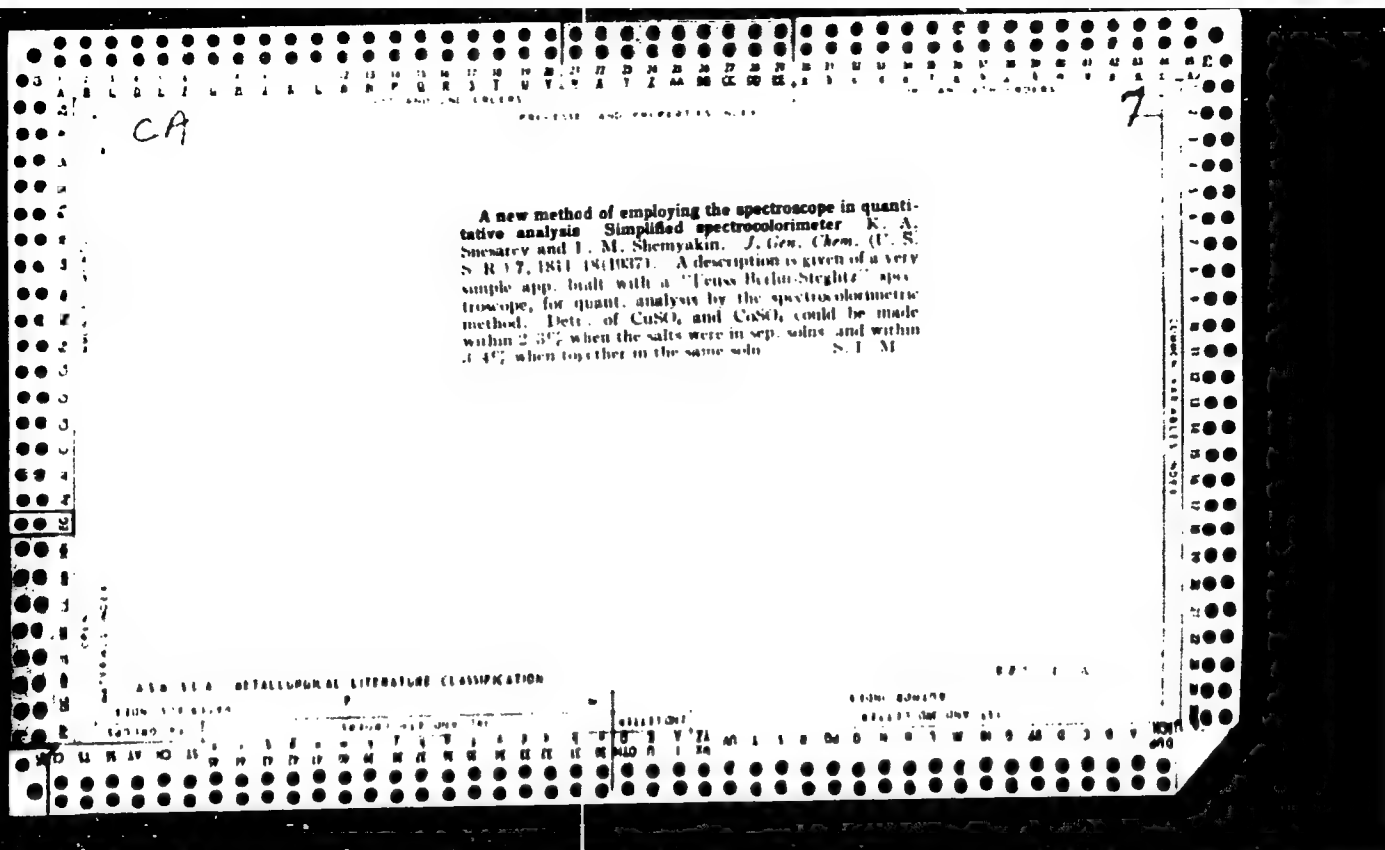
ABSTRACTS AND PROPERTIES

Changes in the viscosity of lyophilic colloid sols. III
Viscous sols. F. M. Shumyakin and M. E. Kuperman
Colloid J. (U. S. S. R.), 317-21(1977); cf. *C. A.*, 20,
2071. The effect of NaCl , Na_2SO_4 , Na_3PO_4 , MgSO_4 ,
 CaCl_2 , AlCl_3 and $\text{Th}(\text{NO}_3)_3$ on η of viscous sols is detd.
The effect varies with the salt used. At sufficiently high
salt concns, the sol undergoes coagulation. Tabulated
data are given. John Lyvak

ASACSLA METALLURGICAL LITERATURE CLASSIFICATION

Potentiometric methods of titrating cerium, lanthanum and thorium with ferro- and ferricyanide. F. M. Shem'yakin and V. A. Volkova. *J. Gen. Chem.* (U. S. S. R.) 7, 1328, 32(1937). A study was made of the conditions for detg. Ce, La and Th by titrating with $K_4Fe(CN)_6$ (I) and $K_3Fe(CN)_6$ (II). Potentiometric detn. of Ce^{4+} by $K_4Fe(CN)_6$ (II) gives a curve with an inflection point corresponding to a quant. pptn. of $CeK_2Fe(CN)_6$. Similarly, Th detn. with I from a 30% $HClO_4$ soln. at 70° gives an inflection point corresponding to a detn. of $ThFe(CN)_6$. Pptn. of Ce and Th together with I gives 2 inflection points where the 2nd point corresponds to the combined pptn. of $CeK_2Fe(CN)_6$ and $ThFe(CN)_6$. La with I in a 0.1% $HClO_4$ soln. at 70° gives an inflection point corresponding to a detn. of $LaK_2Fe(CN)_6$. Simultaneous pptn. of Ce, Th and La in a 30% $HClO_4$ soln. at 70° with I gives 2 inflection points the 1st of which corresponds to Ce and the 2nd to all 3 elements. Presence of Th and La has no effect on the oxidation of Ce with II. S. L. Madorsky

The color reactions of the rare earths with alkaloids and polyphenols. IV. The color reactions of cerium with morphine salts and the reaction of lanthanum, thorium, thallium and the elements of the third analytical group of cations with morphine salts. I. M. ZHURBANOVA and V. A. Volkov. *Dokl. Akad. Nauk S.S.R.* 215:241, 1974, Vol. 1, 31, 381-39. The sensitivity of the testing reaction is not affected by the presence of 10 times its wt. of Fe^{3+} , HCl , dissolved in glacial acetic acid. A clear brown soln. Ce^{4+} , Al , Mn , Ni , Co and Cr give no reaction with morphine hydrochloride. I. M. ZHURBANOVA



Multiple emulsions and spontaneous formation of emulsion systems. F. M. SCHERJAKIN. (Compt. rend. Acad. Sci. U.R.S.S., 1937, 14, 23-26). Observations on the system PhMe-gelatin-H₂O are recorded and the formation of CHCl₃ emulsions by allowing KOH to diffuse into gelatin or agar gel containing chloral hydrate has been investigated. J. G. A. G.

AS 5 SLA METALLURGICAL LITERATURE CLASSIFICATION

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Color reactions of rare earths with alkaloids III
 I. M. Shenyakina. *Compt. rend. acad. sci. U. R. S. S.*
 14, 115-117 (1937) (in English); cf. *C. A.* 29, 7211-2. Tri-
 and quadrivalent Ce react with morphine hydrochloride
 A in ammoniacal soln forming a light or dark chocolate-
 colored ppt. No color effects are obtained with trivalent
 La and quadrivalent Th in ammoniacal soln or with Ce, La
 and Th in acid and neutral solns. The color reaction may
 be used to detect quadrivalent Ce as well as morphine and
 is performed in any of the following 3 ways: (1) *Pptn*
Method. (a) To a soln of tri- or quadrivalent Ce in a test
 tube add a few grains of A and NH₄OH soln. (b) Mix a
 1:1:1:1 soln of A with a 0.01-0.0001 M soln of Ce
 (SO₄)₂ or Ce(NO₃)₃ and add a 25% soln of NH₄OH drop
 by drop. A chocolate-colored ppt. results in both cases.
 (2) *Brown Ring Method*. To a mixt. of solns. of morphine
 and Ce salts in a 200 mm. high cylinder of 8 mm. inside
 diam. add carefully a layer of NH₄OH so as to ensure the
 formation of a sharply defined boundary between the lay-
 ers. When the NH₄OH begins to diffuse into the mixt.
 the resulting ppt. forms a clearly marked brown ring at the
 boundary which is visible at as low a concn. as 0.02-0.002
 mg. Ce/cc. Sometimes several diffused layers (resolving
 rings in the up. soln.) result because of addnl. diffusion

In one exp. as many as 9 irregularly shaped layers were
 formed in 2 hrs. (3) *Drop Reaction Method*. Place 1 drop
 of 0.0001 M Ce(SO₄)₂ on filter paper impregnated with a
 0.1-1% morphine salt soln. or conig. a grain of A and
 either expose to NH₄ vapors or add a drop of a 25% soln
 of NH₄OH. The brown stain formed on the paper is
 very distinct at a concn. of 0.04 mg. Ce/cc. and is still de-
 tectable at 0.01-0.001 mg. cc. If KOH is used in place
 of NH₄ the stain is much weaker with trivalent than with

ASB 51.4 METALLURGICAL LITERATURE CLASSIFICATION

quadrivalent Ce and appears much more slowly. The colored ppt. is quite stable for many days in the test tube as well as on the paper. This color reaction is recommended as a test for Ce in analyses of ores and rocks. No color tests were obtained between cocaine or cinchonine and Ce, La and Th in acid, neutral and alk. media and between bismuth (B) and La, Th and trivalent Ce. Quadrivalent Ce reacts with B in H₂OAc soln. giving a stable pink color in a weakly acid soln. and an orange-red color at a higher concn. The pink color is already visible at a concn. of 0.001 mg. Ce cc. In an alk. medium B yields a dark brown ppt. with tetravalent Th and colorless jellylike ppt. with trivalent Ce, Th and La. The drop reaction method is not applicable as the pink color can hardly be detected in thin layers. The filter paper method is more sensitive than the drop reaction method for the B test for Ce. The reaction of morphine with Ce is explained as being due to the fact that the morphine mol. contains hydroxy groups analogous in properties to those present in polyphenols while the reaction of quadrivalent Ce with B is said to be due to the oxidizing properties of the metal. The B reaction is recommended for the colorimetric determination of Ce.

L. S. Schellman

BC

a-1

Periodic precipitation of barium carbonate, copper chromate, and silver sulphate in aqueous media in capillaries. F. M. SCHENJAKIN and A. I. LAZAREVA (*Compt. rend. Acad. Sci. U.R.S.S.*, 1937, 14, 513—515). F. L. U.

Comparison of periodic precipitation in aqueous media by the Morse and Ostwald methods. F. M. SCHENJAKIN and A. I. LAZAREVA (*Compt. rend. Acad. Sci. U.R.S.S.*, 1937, 14, 517—520).—No important difference is noted between the rhythmic pptn. of PbI_2 and $HgCO_3$ by the Morse (thin film between plane surfaces) and Ostwald (capillary tube) methods. The periodicity const. are slightly lower in the latter. The results are not affected by interchanging the positions of the reacting solutions. F. L. U.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

Periodic precipitations in aqueous media by the Morse and Ostwald methods: F. M. Skrusak and A. I. Lazarevic (*Compt rend Acad Sci U.S.S.R.* 14, 51, 2 (1947) (in English)). Periodic deposition of PbI₂ in H₂O and HgCO₃ (II) occur; if the inner and outer components change places, the layers are much more difficult to obtain with II than with I. If a saturated solution of Pb(NO₃)₂ is the outer component and KI of varying concentration is the inner component, the layers obtained are much better defined than if the relation between the components of the reaction is reversed. In the periodic precipitation of II, auto-form catalysts in an aqueous medium was observed. This is produced by the bubbles of air, or possibly of CO₂, distributed in the capillary layer, in the path of the propagation of the diffusion field. In this case, the direction of the precipitation layers is altered; they arrange themselves at right angles to the surface of the bubble. This phenomenon is observed both on the diffusion of a saturated solution of Na₂CO₃ into a capillary layer of 0.05 N HgCl₂ and in the diffusion of a saturated solution of HgCl₂ into a capillary layer of 1.0 N Na₂CO₃. W. J. Peterson

APPROVED FOR RELEASE: 08/23/2000

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Reactions of rare earths and allied elements with pyrogallol, gallic acid, and morphine. V. E. M. SCHUMSKAYA (Compt. rend. Acad. Sci. U.R.S.S., 1937, 15, 347-350).—The reactions of nitrates of Pr, Er, Y and a mixture of Pr and Nd with an ammoniacal solution of gallic acid (I) and with pyrogallol (II) are described. The presence of Ti, Nb, and Ta inhibits the reaction of Ce with (I) and (II). The action of morphine hydrochloride on salts of Pr, a mixture of Pr and Nd, Er, Y, Ti, Zr, and K_2NbF_7 , and K_2TaF_7 , has been examined.

A J M

122

A-1

Linear corrosion of metals. Selective corrosion of iron by the system water-sulphuric acid-propyl alcohol on three-phase boundaries. L. GINDIN and F. SOMNIAKIN (Compt. rend. Acad. Sci. U.R.S.S., 1937, 16, 400-412; cf. A., 1937, I, 319).—The corrosion of Fe, partly covered with paraffin, in $H_2O-H_2SO_4-PrOH$ mixtures has been investigated. Concn. ranges which yield linear attack at the air-liquid and liquid-paraffin interfaces, periodic formation of films of corrosion product, and resinification of the $PrOH$ are distinguished. J. W. S.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

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SEMYAKIN, F. M.

4-2

1542. Formation of Periodic Ice Streaks during Soil Freezing.
F. M. Semyakin and P. F. Mikhalev. *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.* 17, 8, pp. 405-407, 1937. In English.—By using an analogy between the differential equations of diffusion and heat conduction a law has been obtained giving the spacings between ice-streaks in frost-heaving. The law is in accordance with the observations of S. Taber W. A. R.

AS 5 SLA METALLURGICAL LITERATURE CLASSIFICATION

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117 AND 120 GEDERS

PROCESSES AND PROPERTIES INDEX

Variations of viscosity of sols of lyophilic colloids. IV. Cellulose-sulfonate-sulfonate sols. F. M. SCHENKMAN and M. R. KUPPERMAN (Kolloid. Zhurn., 1955, 6, 31-34).—The effect on η of various salts at concns. up to those required to produce visible coagulation has been measured. In general, η passes through a series of max. and min. with increasing salt concn.

R. C.

ASB S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

117 AND 120 GEDERS

Viscosity changes in sols of lyophobic colloids. V. F. M. Shemyakin and M. B. Kuperman. *Colloid J.* (U. S. S. R.) 4, 363-8 (1938); cf. C. A. 32, 8879⁴.—The η of a 0.5% sol. of secondary cellulose acetate in acetone was measured in a capillary viscometer under a const. pressure. It is changed by addn. of dry salts; the viscosity-salt concn. curve has a min. and a max. for $KMnO_4$, 2 mins. and one max. for $Ca(NO_3)_2$ and 2 maxima and 2 mins. for $FeCl_3$. The coagulating concn. for these salts is 4×10^{-4} , 7×10^{-4} and 4×10^{-4} mol./l., resp. A qual. interpretation of the min. and max. observed is attempted. The d and ρ of nearly satd. sols. of the 3 salts in acetone were also measured. J. J. Bikerman

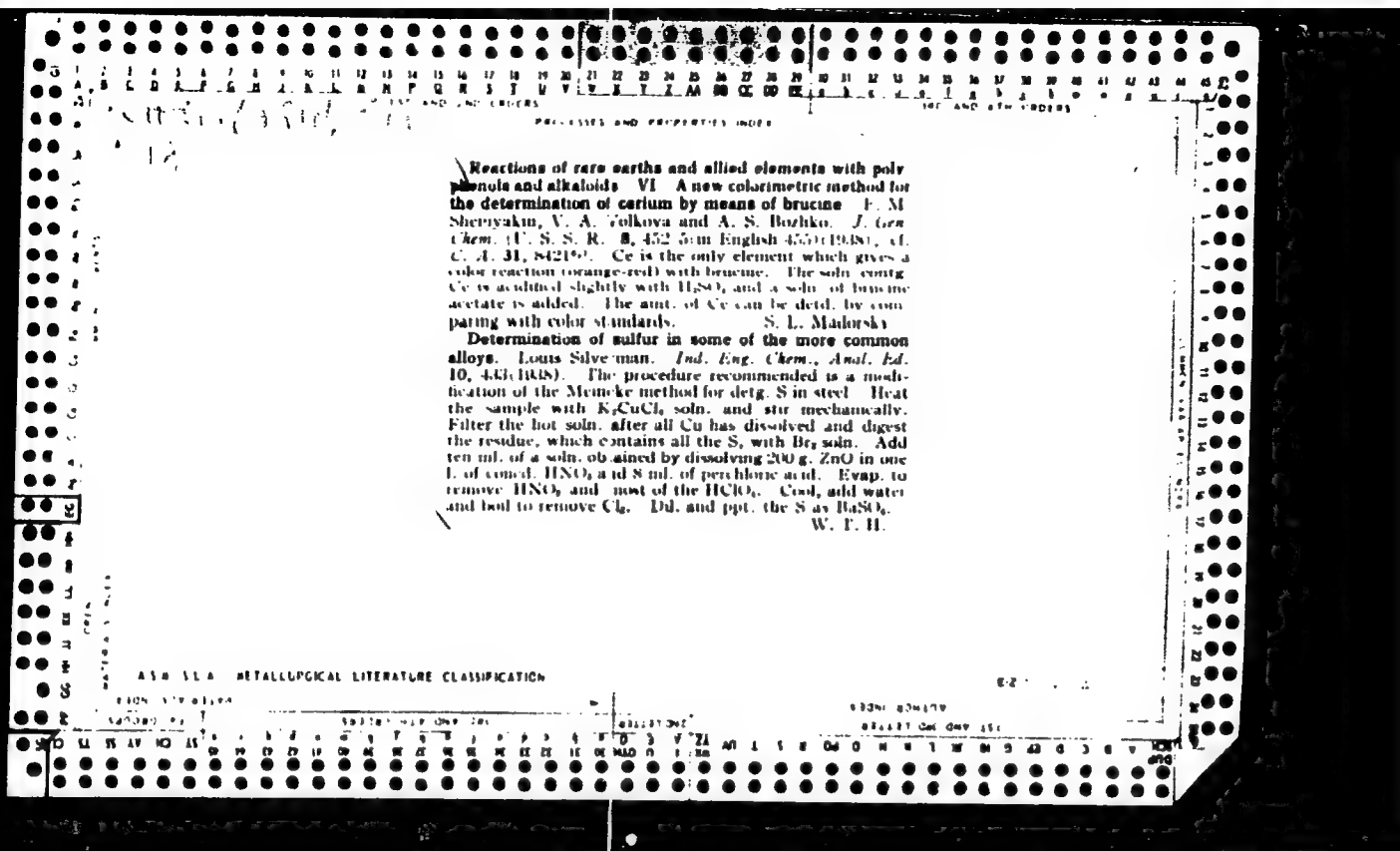
ASH. S. L. A. METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CODES																										3RD AND 4TH CODES																									
PROCESSING AND PROPERTY INDEX																																																			
<p>A possible mechanism of the formation of periodic ice layers during the freezing of soil and the problem of permanent freezing. P. M. Shampubis and P. F. Mihalev. <i>Colloid J. (U. S. S. R.)</i> 4, 300-72(1938).—Using the analogy between diffusion and heat conduction the theory of periodic pptns. of Jablczynski (<i>C. A.</i> 21, 1304) is applied to periodic depositions of ice in freezing soil. There is an agreement between the theory and Taber's expts. (<i>J. Geology</i> 37, 628(1929)). J. J. Hiskerman</p>																																																			
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION																																																			
1ST DIVISION													2ND DIVISION													3RD DIVISION													4TH DIVISION												
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Investigation of pericidic reactions by methods of physico-chemical analysis. XIII. F. M. SCHEM/JAKIN and V. E. KRAUSE (J. Gen. Chem. Russ., 1938, 8, 82-92).—The method of Ostwald (A., 1926, 1202) gives more exact results than does that of Morse (A., 1930, 1117) in the periodic pptn. of neutral-red with $K_2Cr_2O_7$, or of methylene-blue with $HgCl_2$ or $K_4Fe(CN)_6$ in H_2O . R. T.

ASA SLA METALLURGICAL LITERATURE CLASSIFICATION



Reactions of columbium and tantalum with resorcinol.
 F. M. Shermaykin and V. A. Pilipenko. *J. Gen. Chem.*
 U. S. S. R. 10, 824 (in English 8280/1938); cf. C. A. 33,
 4074. — Examined by the method of Gibbs showed that
 contrary to Platonov, *et al.* (C. A. 31, 4614), Cb and Ta
 (K_2CbF_7 and K_2TaF_7) do not give characteristic color
 reactions with resorcinol in alk. solns. as distinct from the
 blue-green or green-yellow reactions of resorcinol alone
 with NH_4OH and KOH . Resorcinol with salts of Ce , Th ,
 Pr , La , Zr and U in NH_4OH solns. forms blue-green ppts.,
 which differ but little in the shades. If KOH instead of
 NH_4OH is used, yellowish and gray ppts. are formed.
 Chas. Blanc

Chas. Blanc

A 30 36 A DETAILURGICAL LITERATURE CLASSIFICATION

BC

11-1

Drop reactions of vanadates and molybdates with 1-nitroso-5-naphthol. F. M. SCHENJAKIN and A. N. BELOKON (Compt. rend. Acad. Sci. U.R.S.S., 1938, 18, 277-278).—A saturated EtOH solution of 1,2-NO-C₁₀H₇OH (I) gives a dark-green ppt. with an alkaline solution of NH₄ vanadate, and a brownish-red ppt. from a solution acidified with HCl. In neutral solution, there is no pptn. The brownish-red ppt. is sol. in KOH, conc. HNO₃, conc. H₂SO₄, and conc. HCl (incompletely). In dil. HCl solution the sensitivity is $\sim 5 \times 10^{-4}$ g. per ml. Pptn. in AcOH solution is less complete. For a drop reaction on paper the sensitivity is $\sim 1 \times 10^{-4}$ g. per ml. AcOH and EtOH solutions of (I) form a red ppt. with an acid solution of NH₄ molybdate (cf. A., 1924, ii, 788). The action of acids and bases is similar to that with the V ppts. Used as a drop reaction on paper four rings, (inner) orange, lilac, yellow, blue, may appear; sensitivity, 10^{-4} g. Mo per ml. In a solution acidified with HCl, AsO₄³⁻ gives a slight orange-red ppt. with (I). L. S. T.

29

Determination of the quality of gelatin from the value
of its periodicity constant. M. Shumyakov. *Chem. Abstr.*
1955, 50:11318. (1955). A gelatin can be char-
acterized by the distances between the periodic points
e.g., of $\text{Ag}_2\text{Cr}_2\text{O}_7$ or MgO in it. Each gelatin gives
highest constants, and photographic gelatin lowest ones.

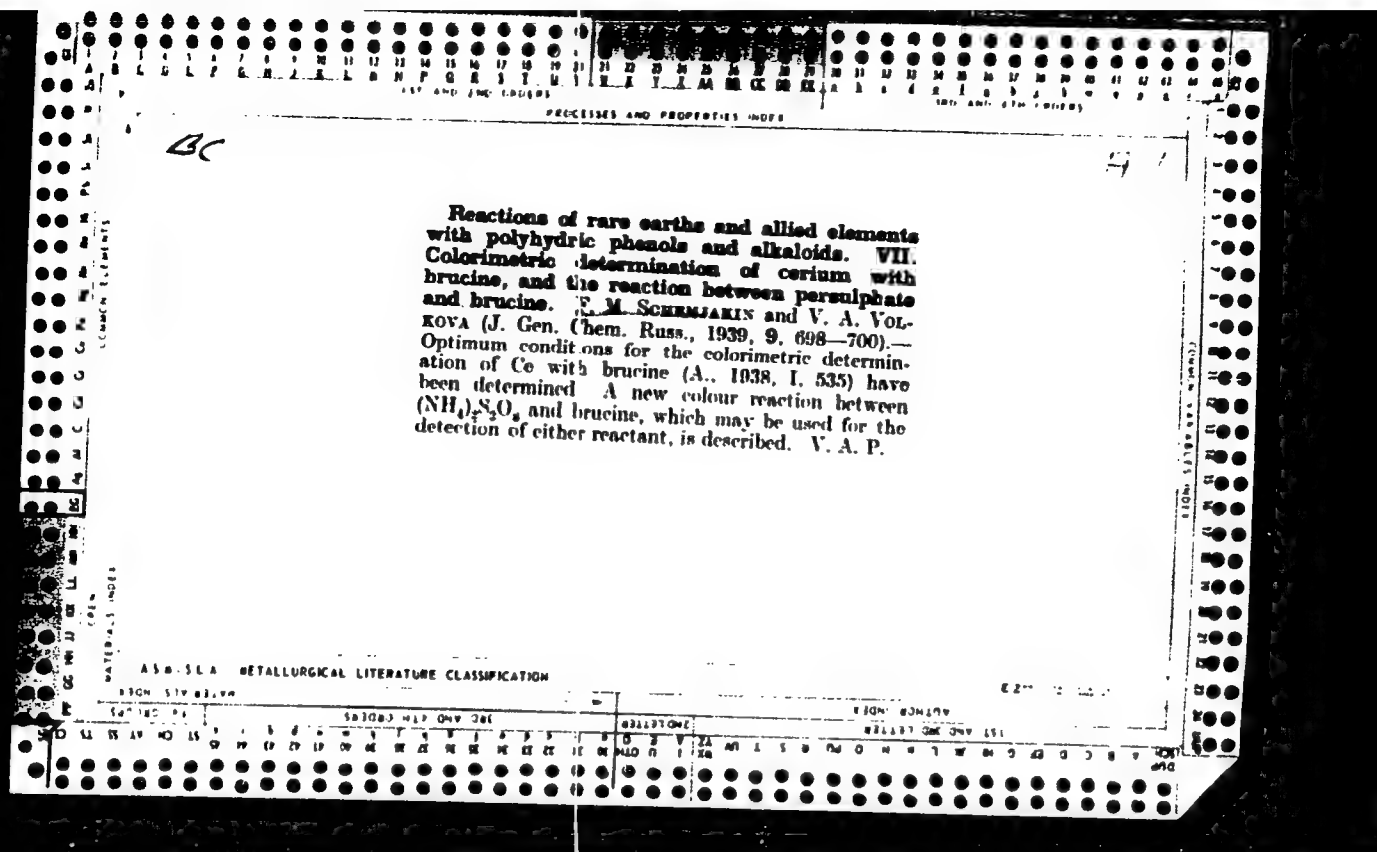
I. I. Bukharin

430.314 METALLURGICAL LITERATURE CLASSIFICATION

1955-1956

1955-1956

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
PROCESSING AND PROPERTIES INDEX																																																			
<p>Method of obtaining periodic structures and determining periodicity constants. P. M. Shemyakin and P. P. Mikhailov. <i>Colloid J.</i> (U. S. S. R.) 8: 655-6 (1970).-- Criticism of the technique used by Nikitorov and Muntan (C. A. 32, 6028). J. J. Bikerman</p>																																																			
<p>ASAC-5LA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			



1ST AND 2ND ORDERS																									
PROCESSES AND PROPERTIES																									
<p>The calculation of limiting numbers of the Liesegang rings. P. P. Mikhalev and P. M. Shemyakin. <i>J. Applied Chem. (U. S. S. R.)</i> 12, 830-8 (in French, 1938) (1440)</p> <p>The periodic pptn. of $Mg(OH)_2$ and Ag_2CrO_4 in 10 and 0.1% gelatin was investigated. The results confirm the Christensen equation (cf. C. A. 28, 6047) for the limiting no. of Liesegang rings. The latter equation does not take into account the variation of the const. of periodicity and of the no. of rings, which depend on the relation of reaction components and medium. Therefore, this equation should be considered as a first approx. and an index of the order of magnitude of the periodicity const. and no. of rings. The statement of Neumann and Costescu (cf. C. A. 33, 8241) that there is no relation between mol. wt. and no. of rings is not correct. Their expts. were made under optimal conditions for the formation of Liesegang rings, but in 10% gelatin and in the presence of 0.002 N citric acid. A. A. Podgorny</p>																									
<p>ASD SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									

CHENYAKIN, F. M.

"Influence of Radiations during the Corrosion of Metals
on the Destruction of Periodic Precipitates of $\text{Ag}_2\text{Cr}_2\text{O}_7$ in Gelatine," Dokl. Ak. Nauk,
SSSR, 25 No. 1, 1939
Inst. Gen. and Inorganic Chem. im Kurnakov, Acad. Sci. USSR

BC

THEORY OF LIOSGANG'S RINGS. F. M. SCHEN-
JAKIN and P. P. MICHALEY (Compt. rend. Acad. Sci.
U.R.S.S., 1966, 23, 994-998).—The conception that
Liosgang's rings result from the formation of standing
electromagnetic waves makes it possible to explain
the physical sense of Föhrt's established analogy
between the generalized diffusion equation and the
generalized wave equation and the physical sense of the
emission theory of Liosgang's rings. Calc. val. of the
diameter of the rings for MnS and $\text{Ag}_2\text{Cr}_2\text{O}_7$, on this
basis coincide with experimental data. F. H.

71

25

Spectroscopic and spectrodensographic methods of control in the process of dye manufacture. F. M. Shemyakin, E. I. Nikitina and K. I. Shklyueva. *Bull. Acad. Sci. U. R. S. S., Ser. Phys.* 4, 120-1(1940).-- Control in the production of the dianilide of purpurine and benzanthrone has been attempted by two different spectroscopic methods: (1) method of limiting dilution and (2) standardized absorption and spectrodensographic method. The results show a satisfactory accuracy. Roxsalana Gamow

Sci. Res. Inst. By-Products and Dyes, im Voroshilov, Moscow

ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSES AND PROPERTIES INDEX																			
<p>CA</p> <p>Quantitative characteristic of Liesegang rings. F. M. Shumyagin. <i>Compt. rend. acad. sci. U. R. S. S.</i> 33, 457-61 (1941). The period city const., the const. of Schleusner (C. A. 18, 2891) and Jalczyński (C. A. 18, 608) and the limiting no. of bands in gels of gelatin in agar-agar and in aq. medium were detd. for the following reactions: AgNO_3 and $\text{K}_2\text{Cr}_2\text{O}_7$, $\text{Ib}(\text{NO}_3)_3$ and KI, AgNO_3 and Na_2AsO_4, Na_2CO_3 and HgCl_2, $(\text{NH}_4)_2\text{S}$ and MnCl_2, sep. of neutral red dye by $\text{K}_2\text{Cr}_2\text{O}_7$, sep. of methylene blue dye by H_2Cl_2 or $\text{K}_2\text{Fe}(\text{CN})_6$, Na_2CO_3 and BaCl_2, CaSO_4 and $\text{K}_2\text{Cr}_2\text{O}_7$, NH_4OH and HgCl_2, AgNO_3 and CaSO_4, acid and Na_2CO_3, Na_2HPO_4 and CaCl_2, HNO_3 and $\text{Ba}(\text{NO}_3)_2$, NH_4OH and $\text{Ba}(\text{NO}_3)_2$, coagulation of As_2S_3 sol. by FeCl_3, by $\text{Al}_2(\text{SO}_4)_3$, or by $\text{K}_2\text{Fe}(\text{CN})_6$. All const. studied depend on the concn. of the reactants and on the reaction medium.</p> <p>R. E. H.</p>																			
<p>ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																			

Survey of optical methods of analysis of dyes and intermediates. P. M. Shemyakin. *Tendy Vsesoyuz. Konferentsii Anal. Khim., Abad. Nauk S. S. S. R. 3, 192-5 (1944).*—Outlined review of general optical methods used in analysis and evaluation of dyes and their intermediates (colorimetry, Raman spectra, etc.). G. M. Kosolapoff

ASB 51.6 METALLURGICAL LITERATURE CLASSIFICATION

US R/Chemistry - Ions - Transfer
Chemistry - Chromatography - Adsorption

Nov 1947

"Chromatographic Transfer Adsorption of Ions," T. B. Gapon, Ye. N. Gapon, P. M. Chernyakin,
Moscow Agricultural Academy imeni K. A. Timiryazev, 3 pp

"Dok Ak Nauk" Vol LVIII, No 4

Theory of Transfer a sorption of ions has been worked out sufficiently. Authors discuss the isotherm equation for the transfer of two ions. It was developed by one of the authors and has the form:

$$\frac{S_1}{S_2} = K_{12} \frac{a_1}{a_2} \frac{z_1}{z_2}$$

where S_1, S_2 - are the amounts of adsorbed ions,
 a_1, a_2 - the activity of the ions in the solution, and z_1, z_2 - the valencies of the ions. Submitted by Academician N. N. Dubinin, 13 Apr 1947.

PA 38T9

27

Chromatographic separation of cations with the aid of α -hydroxyquinoline, β -naphthoquinoline, and cupferron. P. M. Shemyakin and E. S. Mitschovskii. *Zhur. Anal. Khim.* 3, 349-53 (1948). α -Hydroxyquinoline, m. 73-74°, β -naphthoquinone, m. 92°, and cupferron, m. 150°, were tested as adsorbents for chromatographic sepn. of cations. The hydroxyquinoline was used by itself, the other 2 were mixed with potato starch in a ratio 1:1 by vol. A soln. contg. 2 cations in concns. of 0.05 M each was carefully percolated through the adsorber and the widening of adsorption bands with time was observed. The percolation continued until the widening ceased. The pairs of cations thus analyzed were: Cu-Fe, Cu-Ni, Cu-Co, Co-Ni, Ni-Fe, and Co-Fe. Only Co-Ni formed 2 distinct bands. Of the other pair, the 2nd component was eluted after more or less time. Of the tested cations Cu was adsorbed best and Fe least. On β -naphthoquinoline was tested the sepn. of Cu-Co. No sepn. was visible. Treating the column with a soln. of NH₄CNS prior to percolating the soln. produced 2 bands of which the 1st, Co, was eluted. The same pair was tested also on cupferron. Two bands were obtained with or without preliminary treatment with NH₄CNS. M. Hosh

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Ali-Union Inst.-Ariston Materials

ASB 51A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ADDRESS										PROCESS AND PROPERTIES INDEX										3RD AND 4TH ADDRESS									
<p><i>CA</i></p> <p>Rhythmic precipitation during reactions in the gas phase. P. M. Shemyakin. <i>Kolloid. Zhur.</i> 10, 304-7(1948). NH₃ and HCl diffusing in the opposite directions in a tube form periodic ppts. of NH₄Cl, the spacing of which de- pends on the concn. of the gases and on the presence of H₂O vapor. The reaction between H₂S and SO₂ yields poor periodicity of S ppts. and there is almost no periodic- ity in the ppt. of S from H₂S and Cl₂. J. J. Bikerman</p> <p style="text-align: right;">2</p>																													
<p>ASS-51A METALLURGICAL LITERATURE CLASSIFICATION</p>																													
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SUBJECT										SUBJECT										SUBJECT									

1ST AND 2ND COLUMNS										3RD AND 4TH COLUMNS									
PROCESSING AND PROPERTY INDEX																			
<p>Kinetics of chromatographic separation of pairs of colored ions on aluminum oxide. P. M. Buzaykin and K. S. Mityukovskii. <i>Doklady Akad. Nauk S.S.S.R.</i> 11, 305-322 (1948). --Sharp seps. of various pairs of salts of Fe^{+++}, Fe^{++}, Cu^{++}, Ni^{++}, Co^{++}, Cr^{+++}, was obtained in Al_2O_3 columns 65 mm. high, 7 mm. in diam. Essential conditions of sharp and uniform boundaries are homogeneity of the grain size of Al_2O_3, absence of air bubbles, good wettability and slow (dropwise) addition of the soln. The rates of the progress of the front of the band of a given anion, detd. on the pairs $\text{Fe}^{+++}\text{-Co}^{++}$, $\text{Fe}^{+++}\text{-Cu}^{++}$ and $\text{Cu}^{++}\text{-Co}^{++}$, taken in various concn. ratios at the const. sum 0.1 M, follow the law $x = X(1 - e^{-kt})$ where x = distance, in mm., swept by the front of the band during the time t, in min., X = limiting distance reached by the front at equil.; the constants k have the values: for Fe^{+++} 0.21, Cu^{++} 0.18, Co^{++} 0.15. Example of data: Cu^{++} 0.02 M + Co^{++} 0.08 M, 1, 4, 8, 16, 30 min., x for Cu^{++} = 1.4, 4.8, 7.1, 8.2, 8.3, for Co^{++} = 4.2, 14.3, 23.0, 33.8, 35.0 mm.; Fe^{+++} 0.02 M + Cu^{++} 0.08 M, x for Fe^{+++} = 2.0, 3.6, 4.6, 4.6, 4.6, for Cu^{++} = 4.3, 17.0, 26.0, 31.3, 32.0 mm.; Fe^{+++} 0.05 M + Co^{++} 0.05 M, x for Fe^{+++} = 1.6, 7.7, 12.3, 15.1, 15.1, for Co^{++} = 4.0, 14.4, 17.2, 43.3, 47.1 mm. The widths of the zones of each cation are a function of the relative concns.; in $\text{Cu}^{++}\text{-Co}^{++}$, the width of the zone of Cu^{++} decreases nearly linearly with its concn. (37 mm. at 0.09 M, 5 mm. at 0.01 M), that of Co^{++} decreases more slowly. In $\text{Cu}^{++}\text{-Fe}^{+++}$ and in $\text{Co}^{++}\text{-Fe}^{+++}$, there is a sharp seps. into 2 zones at extreme concns. of one constituent; at nearly equal concns., there appears an intermediate mixed zone.</p> <p style="text-align: right;">N. Thom</p>																			
<p>AND SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																			
<p>FROM 11/15/1948</p>																			
<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p>																			